Sheep and Wool.

Eastern Wool Markets.

New York, May 22d.—There are but few changes to note in Wool. The market has been moderately active for fine grades of California and Texas, and the prices realized were quite satisfactory throughout. There is no very heavy business looked for until after the arrival of the new clips of Ohio and Western fleece, for manufacturers believe that with a continuance of the present unremunerative prices for goods, receivers of the raw material may be induced to recede somewhat from their present ideas. Australian sells slowly at 51@52½ cents. The cargo of Sidney, ex *Europa* amounting to 1 300 bales, will be offered at public auction on next Wednesday. Carpet stock is meeting with a general demand, and prices are steady. The sales for the week are 148 bales Australian clothing, at 51@52½c.; 10,000 lbs. do combings, at 55c.; 85 bales Cape, 33@35c.; 8,000 lbs. Mexican, 22c.; 25 bales East India and 224 do Rio Grande, private; 224 do California, 15½@22c.; 26 do new spring, 30@35c.; 10,000 lbs. slightly burry, old stock, 22c.; 341 bags scoured do, 65@72½c.; 25,000 lbs. California lamb's, 26c.; 328 bags western Texas, 23½@28½c.; 75,000 lbs. East'n do 24@32c.; 25 bales Nevada, 32c.; 10,000 lbs. selected Ohio combing fleece, 70c.; 3,000 lbs. fat sheep's, 40c.; 195 bags super and X pulled, 43@48c.; 50 do black do; 3,000 lbs. Connecticut fleece, 2,000 lbs. combing, do, and 5 000 lbs. medium unwashed Western do, on private terms.

Boston, May 22d.—There is no prospect as yet of any improvement in Wool, although there has been rather more doing the past week. The market is dull for all fine Wools, and prices are unsatisfactory. Manufacturers are looking for lower prices for all descriptions of clothing Wools when the new clip begins to arrive. Combing and desirable lots of medium fleeces are likely to sustain a good range of prices as long as manufacturers continue to run on these grades, as the supply is limited, but otherwise the prospects of the trade are not very encouraging. Sales of Ohio and Pennsylvania fleeces have been 10,600 lbs., at 55@56c. Choice XX fleeces have been held at 52½@53c., and these are extreme prices for this description, while medium and No. 1 range 3@5c higher. Michigan and Wisconsin fleeces have been taken only in small lots, at 47@50c. California Wool has been arriving more freely. Sales have been 440,000 lbs., at 22@24c. for spring, and 17@25c. for fall. Some of the recent receipts include fancy lots, and as high as 40c. ₱ lb. has been obtained for a small lot of 1,500 lbs.; but this is no criterion of the market; 35c. may be considered an outside figure for choice Spring, and 30@32c. for good average lots. The receipts so far have been taken on arrival, but stocks at the close are beginning to accumulate. In pulled Wool there is very little change; good and choice Eastern and Maine superfine are still in demand, at prices ranging from 50 to 57c. There have been sales of combing and delaine at 56½@65c.; scoured, 47c@$1.08; super and pulled, 40@57c.

Sheep Raising.

[By Col. E. S. Stowell.—Continued.]

Ancient Shepherds and their Flocks.

The comparative histories of the primitive shepherds with the nomadic shepherds of today, show so many points of resemblance, and withal such tenacity to the traditions of their elders on the part of the Arabic shepherds, whose customs are almost identical with those of the Patriarchs, that it is fair to suppose them entitled to the credit of inventing the very simple process by which Arab women manufacture from the wool of their flocks now.

Burkhardt thus describes the loom at present found among the Arab shepherds: "The Arabs use a simple loom; it is called *nulon*, and consists of two short sticks which are stuck in the ground at a certain distance, according to the desired breadth of the *shanici*, or piece to be worked; a third stick is placed across over them and over the two horizontal cross sticks, the wool. To keep the upper and under woof at a proper distance from each other, a flat stick is placed between. A piece of wood serves as the weaver's shuttle, and a short gazelle's horn is used in beating back the thread of the shuttle. The loom is placed before the mabarrem, or women's apartment, and worked by the mother and her daughters. The distaff is in general use among them, and among the Kilby Arabs all the shepherds manufacture wool."

It is probable that the covering of primitive sheep was a mixture of hair and wool, closely akin to that of many varieties now occupying extensive districts where the Patriarchs wandered, northward and eastward, through a great part of Europe and Asia, and our own Mexico and South America. Says Youatt, "It is highly improbable that the sheep which has now become *par excellence* the wool bearing animal, should in any country, at any time, have been entirely destitute of wool, but covered externally with hair, and underneath with a fine, short, downy wool from which the hair is easily separated." Partially by temperature, perhaps, but mainly by breeding and cultivation, this hair has been caused to disappear and its place occupied, yea, more than occupied, by the soft clean wool, once of but few ounces, but now of many pounds.

In the palmy days of the Roman empire the Italian sheep surpassed all others in the fineness of their fleeces. The sumptuous Roman was clothed in woolen fabrics of the finest texture, and fortunes, even according to ideas of to-day, were often expended for his *toga*. "The best wool of all others," says Pliny, "is that of Apulia and Tarentum, which is of a very short staple, and especially in request for cloaks and mantles." "This induced that extreme assiduity in perfecting the material for its manufacture," says Youatt. "Although the old Tarentine sheep produced a wool unequaled in early times, they were not without their defects, and very serious ones, too. They were called by the agriculturists of those days *orellitte*, from the skins and other clothing with which they were covered; and also *molles*, not only from the softness of their fleeces, but from the delicacy of their constitution and the constant care that was required to preserve them from injurious vicissitudes of heat and cold. The care bestowed upon the fleece was a work of great labor. It was frequently uncovered, not only to ascertain its condition, but for the refreshment of the animal; it was drawn out and parted, and combed if it was beginning to mat; it was frequently moistened with the finest oil, and even wine; it was well washed three or four times a year; the sheep houses were daily, and almost hourly washed and cleaned and fumigated."

The introduction of silk and cotton fabrics from the East, better adapted to the climate of Italy, caused the celebrated flocks of Apulia and Tarentum to disappear, to be succeeded by a larger, coarser, but more profitable race, better suited to the time. In A. D., 41 Columella, a distinguished agriculturist, introduced many of the Tarentine breed into Spain. They had gradually spread from Syria and the Black sea into Italy, and arrived at eminency.

(To be Continued.)

Miscellaneous.

The Fahrenheit Thermometer.

"Zero," on the common thermometer, like the fanciful names of the constellations, is a curious instance of the way wise men's errors are made immortal by becoming popular. It may be worth while to say that the word itself comes to us through the Spanish from the Arabic, and means empty, hence no thing. In expressions like "90° Fahr.," the abbreviation Fahr. stands for Fahrenheit, a Prussian merchant of Dantzic, on the shores of the Baltic sea. His full name was Gabriel Daniel Fahrenheit.

From a boy he was a close observer of nature, and when only nineteen years old, in the remarkably cold winter of 1709, he experimented by putting snow and salt together and noticed that it produced a degree of cold equal to the coldest day of that year. As that day was the coldest the oldest inhabitant could remember, Gabriel was the more struck with the coincidence of his little scientific discovery, and hastily concluded that he had found the lowest degree of temperature known in the world either natural or artificial. He called that degree zero, and constructed a thermometer, or a rude weather glass, with a scale graduated up from zero to the boiling point, which he numbered 212, and freezing point 32—because, as he thought, mercury contracted the 32d of its volume on being cooled down from the temperature of freezing water to zero; and expanded 180th on being heated from the freezing to the boiling point.

Time showed that this arrangement, instead of being truly scientific, was as arbitrary as the division of the Bible into verses and chapters, and that these two points no more represented the real extremes of temperature than "from Dan to Beersheba" expresses the exact extremes of Palestine.

But Fahrenheit's thermometer has been widely adopted, with its inconvenient scale; and none thought of any better until his name became an authority, for Fahrenheit finally abandoned trade and gave himself to science. Then habit made people cling to the established scale, as habit makes the English cling to the old system of cumbrous fractional money.

Our nation began to use Fahrenheit's thermometer about the middle of the last century, or not far from the time when old style was exchanged for new style in the writing of dates.

The three countries which use Fahrenheit are Holland, England and America. Russia and Germany use Reaumur's thermometer, in which the boiling point is counted 80° above freezing point. France uses the centigrade thermometer, so called because it marks the boiling point 100° from freezing point.

On many accounts the centigrade system is the best, and the triumph of convenience will be attained when zero is made the freezing point, and when the boiling point is put 100 or 1,000° from it, and all the subdivisions are fixed decimally.

If Fahrenheit had done this at first, or even if he had made it one of his many improvements, after the public adopted his error, the luck of opportunity, which was really his, would have secured to his invention the patronage of the world.—*Ex.*

Progress in Iron Work.

At a meeting of the New York Society of Practical Engineering, held on the evening of the 22d ult., George E. Harding, M. E., read the regular paper on 'The Progress of Invention in the Metallurgy of Iron," reviewing the successive steps by which this industry has arisen from its primitive methods to its present complex processes and colossal proportions. He stated that the next step forward to be made in iron manufacture is the production of shaped articles direct from the ore, without reheating or intermediate processes. At the close of Mr. Harding's paper, the Hon. Abram S. Hewitt made an extemporaneous address on the most recent successes of iron making. Among other matters of interest he stated that the production of iron direct from the ore is easy by the use of charcoal, but not with hard coal. This direct production of iron is not, however, of the same importance as it was formerly, for the reason that steel may be made direct, and is so rapidly taking the place of iron for many purposes that the production in Great Britain has risen in a few years from 20,000 tons to upward of 1,000 000, and in the United States already amounts to 500,000 tons per annum. The elimination of phosphorus from iron is no longer the problem that only recently has been the case, for it has been found that by eliminating the carbon instead, a good steel can be made, containing as much as four-tenths of one per cent. of phosphorus. Good steel may contain either carbon or phosphorus, but not both together. The result of this discovery will be to open up immense tracts of American iron mines that hitherto have been of little worth. The midsummer session of the Society of Practical Engineering will be held in July next.

Safety-Lamps not Always Safe—And Why.—Twenty-two large explosions have taken place in English coal mines since the year 1866, among these seventeen took place at the moment of the firing of a blast at a distance. Galloway conceived from this the suspicion that a violent sound wave might be capable of pushing the flame through the wire gauze of the safety lamp, and thus ignite the inflammable gas around. It was known that when explosive gases are drawn through a wire gauze with a velocity of ten to twelve feet per second, the flame penetrates and ignites them; but it was not known that a sound wave would do the same thing, and this is what Galloway has proved by experiment. He placed a safety-lamp in an explosive mixture, and fired a pistol at a distance of twenty feet, or ignited a box filled with a mixture of coal gas and oxygen; in either case a large flame was projected through the wire gauze out of the safety-lamp, and ignited the surrounding gas. He found no difference when the gas was separated from the air by means of a thin membrane, which would not permit air currents to pass, but only transmit the sound wave. The experiment was varied by transmitting the sound wave through a tube twenty feet long, and of which the axis was directed toward the safety-lamp; closing this tube with an elastic membrane made no difference whatever. He therefore came to the conclusion that a blast in a coal mine may make all the safety lamps useless, while it explains the fact that an explosion in one part of a mine is often immediately followed by another explosion at a distant point.

The Planet Uranus.—The spectroscope has enabled astronomers to ascertain that the atmosphere of the planet Uranus, which is further from the sun than any other planet except Neptune, is composed chiefly of hydrogen gas. Mr. Proctor says that if there is even a small proportion of oxygen present, an electric spark, however minute, would cause tremendous convulsions by combining the hydrogen and oxygen into water. The *Spectator*, referring to his assertion that there is probably no life upon the planet, asks, "Why may there not be life which needs no oxygen?"

The New Method of Electric Illumination.

Dr. Wilde, of the St. Petersburg Academy of Sciences, has recently made a report to the Academy upon the new mode of producing the electric light proposed by M. Ladyguin, of that city. Since the discovery of the voltaic arc in 1821 by Davy, many attempts have been made to utilize it practically for illumination. But in spite of the regulators devised for the purpose, it still remains variable and inconstant; being too intense used at a single point, it is yet incapable of division. Since the improved magneto-electric machines have reduced the cost of the electric light to only one-third that of coal gas, these efforts to utilize it have been redoubled. And, as a result, M. Ladyguin has made an invention which, in a very simple way, resolves both problems, rendering the light steady, and at the same time capable of division. It has long been known that the electric light proper comes from the intensely heated carbons which the current traverses, the resistance of the air between them developing this heat. So the resistance of a platinum wire placed in circuit causes it to be highly heated; but the light thus obtained, though constant, and entirely controllable, is too feeble for practical use.

M. Ladyguin has conceived the idea of replacing the platinum wire in this experiment by a thin rod of gas carbon, and with complete success. Carbon possesses, even at the same temperature, a much greater light-radiating power than platinum; its calorific capacity is less than one half that of platinum; it is, moreover, a sufficiently good conductor of heat; so that the same quantity of heat elevates the temperature of a small rod of carbon to nearly double that of a wire of platinum the same size. Again, the resistance of the carbon employed is 250 times greater than that of platinum; hence it follows that a rod of carbon may be fifteen times as thick as a wire of platinum the same length, and yet be heated by the same current to the same degree. Finally, the carbon may be heated to the same intense whiteness without the danger of fusion to which platinum is liable. These are some of the advantages of carbon; its only disadvantage is, that heated in the air it burns, and so gradually wastes. But M. Ladyguin has happily obviated this difficulty by enclosing the rod of carbon in a glass cylinder containing no oxygen and hermetically sealed. Dr. Wilde asks, in conclusion, that the Academy recognize the fact that M. Ladyguin has solved the grand problem of dividing and rendering steady the electric light, in the simplest possible manner, and that they award him, in consequence, the Lomonossow prize.

Expansion and Contraction of Boilers.

One difficulty to be contended with, in the management and working of steam boilers, arises from the unequal expansion and contraction of the parts of the structure. In some instances these are so great as to be the cause of more wear and tear than any other process to which the boiler is subjected.

Iron expands in volume one-eight-hundredth; or, in other words, a bar of iron one inch square and 800 inches long would expand one inch in length while heated from the freezing to the boiling point of water. The proportion of expansion, for any length of bar, corresponding to any length of boiler, can be easily estimated. It is not to be understood, however, that the maximum expansion would occur in boilers generally, for it is rare that one is allowed to get so low in temperature as thirty degrees. Still, in the winter season, boilers when "blown down," are liable to become very cold.

From experiments made by M. Wertheim, he concluded, from certain phenomena, that there is a kind of thermal elastic limit with iron. "When heated, and when its consequent dilation of volume does not exceed that which corresponds to the boiling point, it returns to its original dimensions. Beyond a certain temperature it does not contract again to its primitive volume, but takes a permanent dilation in consequence, apparently, of its elastic limits having been exceeded."

A New Earthquake Indicator.

A highly ingenious, though simple apparatus, designed by M. Malvosia, of Bologna, to indicate the commencement of earthquake shocks, has lately attracted the attention of Italian *savants*. We will try, briefly, to describe it: On a slightly inclined board is fixed a spherical cap, having eight grooves, corresponding to the eight principal points of the compass. A little beyond the edge of the cap there is a projecting wooden ring which limits the inclined surface. On the top of the cap is poised a little brass ball, which is slightly flattened at the point of contact. Upon the ball rests, very lightly, a conical weight by a small screw projecting from its base. This weight is suspended by a chain from an overhanging arm, moveable up and down on a support at the side.

It will thus be seen that the least shock will cause the ball to topple over. When it does so it will run down one of the grooves of the cap to the inclined plane, at the bottom part of which it finds a hole, and passing into it, causes the discharge of a pistol. But this is not all. Whenever the ball has left its position on the cap, a spring needle, longer than the diameter of the ball, shoots out from the little screw-knob that rested on the ball and catches in that groove of the cap down which the ball ran.

Thus the direction is indicated in which the shock has been given; it has been on the opposite side to that in which the needle hangs down. The instrument is said to be very sensitive, and will doubtless render good service in what is now a little understood branch of science.

Interesting Discovery.—A discovery of a curious nature has been made in Egypt by a *savant* who has found and deciphered an inscription in honor of Toutmosis III, containing more than four hundred geographic names, very precise and recognizable, concerning Arabia, Armenia, Nubia, and the coasts of the Mediterranean. The inscription is thirty-five centuries old, and will give rise to some historic and geographical debates of great value.

Lead veins are evidently formed by the accretion of gaseous particles, and the growth or repletion carried forward by the laws of crystallization. Suppose this crystallization to be under the control of any supposable principle, and each mass of ore (whether in regular cubes or having the edges or solid angles of the cubes truncated) to have direct reference to each other cube, and the key of the filling or repletion of the vein system of a lead field may be had.

Music from Gas Jets.—An extraordinary new musical instrument, called the pyrophone, invented by M. Kastner, of Paris, has been exhibited at the Society of Arts. The notes are produced by the singing of gas jets in glass tubes, and are sweet and pure, and, at the same time, have great penetrative power. After the reading of the paper on the invention, illustrations of the music emitted were given separately and in concert with the human voice.

American Ordnance—A Novelty in Gun Manufacture.

Before the war of secession our guns were the most powerful in the world; but since that we have made no progress in that direction, while the nations of Europe have gone a long way ahead of us. There is not in the United States to-day a private or public factory capable of forging a 100-pounder of steel or wrought iron, and the proposal by a bureau officer to purchase suitable guns from abroad would be justly construed as a gross affront to the American eagle. Urgent appeals have been made every year to Congress with a full representation of the case, but with little effect. Congressmen seem to think but little of the necessities of national defence. The contingency of a foreign war is apparently regarded as so remote that it is not thought to be worth the smallest insurance premium upon it. It is not difficult to obtain each year a few thousands of dollars for experimental purposes; but when mention is made of the millions necessary to provide a national gun factory, Congress declines with astonishment the unwelcome proposal.

After many efforts the Ordnance Department succeeded in obtaining two years ago, an appropriation for constructing and testing some heavy rifles. It was provided in the act that one of these should be a breech-loader. A board was appointed to select the models, and those chosen were: 1, a 12 in. Krupp; 2, a 12 in. Woodbridge muzzle-loader; 3, a 12-in. Hotchkiss muzzle-loader, besides several minor recommendations. The Krupp gun was never negotiated for, because it soon became apparent that the other projects would more than swallow up the appropriation, and American genius must be encouraged, not affronted. Hotchkiss' gun has been much elaborated and modified, and the inventor expects to have his gun finished during this spring, if the funds hold out. This gun is made up by welding together iron disks, and then boring out. The plan is an old one, and failed in the hands of Dr. Ames, the gun separating into sections at the welds. Hotchkiss' improvement consists in his method of welding.

The Woodbridge gun is in most respects a novelty. He proposed his plan as long ago as 1850, when his proposal was favorably endorsed by General Scott. During the war a small gun was made by him and could not be ruptured.

His plan consists in winding about a steel tube a coil of soft steel wire. The wire is fed to the coil in a band consisting of twenty or thirty wires, each wire of three-tenths of an inch cross section. When the coil is wound up the whole is placed in a tight flask of boiler iron, and this is put into a specially constructed furnace, muzzle upwards, and heated to redness. An alloy of 80 of copper and 20 of tin is then poured into the flask. This is a very fusible alloy, and is expected to solder the wires into a practically homogenous mass, and to give trunnions and contour to the gun. If this succeeds the finishing of the gun is of course mere lathe-work. This project seems at first to have some of the Munchausen elements in it; but a very careful study of the elaborate details of the plan, and of Mr. Woodbridge's preliminary experiments, led every member of the Ordnance Board to the belief that it was worth trying. It is known that bronze penetrates with astonishing power between clean surfaces of iron or steel, when the latter is hot enough to preserve the fluidity of the bronze, and when the surfaces are thoroughly clean. This has been abundantly verified at the Springfield armory. Moreover, the small gun made by Dr. Woodbridge in 1861 was cut into small pieces, and was found to be homogenous and solid throughout. The furnaces, machinery and steel tube for this gun have been procured, and the calibre of the first one is intended to be nine inches, on account of the extreme novelty of the experiment; but if it proves successful a 12-in. rifle will be immediately constructed—or attempted. Difficulty has been experienced in procuring the wire. It is required to be square in section and of three-tenths of an inch in gauge, and as the inventor is extremely exacting and cautious, much difficulty has been found in fulfilling his requirements.

The principle appears to have many points to recommend it. Its longitudinal strength will be guaranteed by the obliquity of the wires, which will be reversed in the alternate layers. It is objected by many that the heating of the coil and its subsequent slow cooling will deprive the wires of a great portion of their tensile strength; but, granting this, there will still be left a very high tenacity, as has been shown by Mr. Woodbridge in his extensive preliminary experiments, and, as already stated, the inventor combines with some daring a great and perhaps excessive amount of caution and foresight in providing against possible sources of difficulty and errors of detail, so that good results are very confidently anticipated.

Fish Culture and Protection.

The protection and culture of fish has attracted no little attention in the past few years throughout the country, from Maine to California. Why should not Kentucky look to so great an interest? Let her streams be protected, as in other States, from seines and poisoners, and they will afford not only fine sport to the angler, but support, at least in part, to a vast number of families in the more sparsely populated portions of the State.

This is no new subject. It is considered in China of paramount importance now, as it has been for centuries. Mr. G. H. Colton Salter, ex-United States Consul to China, tells us that the people there hold in great reverence anything in the way of fish which contributes largely to their support, and they ascribe especial virtues to the medicinal properties of the oil of the shad, considering it almost a specific for affections of the air passages, and, in its early stages, a positive cure even for consumption. The Chinese show the greatest care in keeping the waters free from taint and poison. Their rivers are probably as full of fish to-day as they were 4,000 years ago.

If this subject is of such great consideration in the oldest country of the world, it should certainly command, in some degree, attention here in Kentucky. With our limpid large springs, ponds may be made, in which the trout, and the grayling (a new fish), may be propagated successfully. These with the gamey black bass and newlight, would not only afford fine sport to families, but a very desirable, wholesome food. No farm should be without a pond well stocked with fish, even though they be small black or sun perch. To catch them affords amusement to children, and not unfrequently to men and women.

Fish eggs—even young fish—can be safely transplanted and cultivated in any stream or pond. All that is wanted is the *will* to do it. Let the owners of rich, broad acres in this happy blue grass region think about this matter, make ponds, and stock them with good fish. They will never regret it.—*Kentucky Live Stock Journal.*

The Canadian merchants appear to be getting reconciled to the Grange, as at the last quarterly meeting of London Division Grange "it was resolved that the names of manufacturers and dealers who have made offers of reduction in the prices of articles to the Division Grange be printed for distribution."

Chances for Finding Mines.

The limits of the areas on the Pacific slope which are unexplored by the prospector, are of course being gradually reduced, but there still remains much country which, for all practical purposes, is unknown to the miner. It is not enough for his purpose that nearly all parts of the country are, even when not settled up, occasionally visited by hunters, stock men, etc., or run over hastily by people not seeking precious metals. Every day fresh discoveries are being made in places which have had a small population in the vicinity for years, and we have no reason to assume that a tract contains no gold, silver, lead, coal or quicksilver, because up to the present time it has not attracted the attention of the miner. The prospector has not to travel far to find new country, and in the neighborhood of older mining districts there are many tracts yet undeveloped. Moreover, there are many claims which were abandoned years ago, before perfect appliances for saving the precious metals were thought of, and when labor and food was high.

It is, moreover, by no means certain that because other prospectors have passed over ground that there is nothing to be found. Many of us remember instances where ground was supposed to have been thoroughly prospected, and after perhaps a hundred different men had gone over it, another man would come along and strike it rich. The writer recollects having camped in one locality a week with three other prospectors, and thoroughly worked over a small section, finding nothing. Two weeks after two men camped at the same spring, and found a vein cropping out, which, after working about three years, they sold for $130,000. This vein was not 200 yards from the spring where the camps were located, and the first party had passed over the croppings, which were small, many times without seeing them. This is by no means an isolated case.

Many old miners, however, prefer to work and re-work well known gulleys and flats rather than spend their time in making trials in new ground. It is often stated that in new camps, the miners, curiously enough, almost always accidentally open the richest claims first; but those who make this statement do not always take care to examine the facts. At first any new discovery—the finding of any rich pocket, excited the public mind, and even without exaggeration, the facts made known in the early days of our gold mining were startling; but more extraordinary results are obtained now, week after week, than many which occurred in early days.

When we read a paragraph in a newspaper informing the public that the last clean-up of such a claim was $60,000, or such a mine is raising 200 tons of ore per day, worth $150 per ton, there is neither surprise nor excitement. The public has become accustomed to regard these as ordinary occurrences, and fails to contrast them with what was presented to their observation ten or fifteen years ago. In California, this is more particularly noticeable in quartz mining.

In fact, the prosperity of California mining, paradoxically, stands in the way of its advancement. If our miners were not well off, if they had not good machinery and appliances to aid them, if they were obliged only to select the richest rock, and pound it up in a mortar, as is often done in new camps, the results of their labors when made known would attract hundreds to the mines. But merged in averages and given in bulk, they fail to convey intelligence which excites the mind. In many cases, if miners had to select the rock, as in early days they used only the richest dirt, results now often obtained would seem so extraordinary as almost to exceed belief.

Take California, for example, with regard to new mines. Ten years ago it was thought that at this time there would not be a thousand miners in the State, but there are more than ever before. All this time with quicksilver as valuable as it was, there were only two or three mines of this character being worked. Last year, when the price of the article was very high and a new mine or two was found, prospectors started in all directions, and the result was that many people found the precious metal almost under their noses, on their ranches, near their towns and in all directions. It has been found in all the coast counties from Mendocino to San Diego and away back in the interior.

The measure of the success of the mines must not be gauged by our exports alone, nor must it be gauged altogether by the published statements of bullion product. Immense sums have been expended in all the mining States and Territories in the construction of roads, ditches, mills, machinery, etc. In many places large towns, with fine buildings, etc., show that no small share of the wealth the mines have yielded has been profitably used in turning the wilderness into a habitable abode. In many places where a few years ago man's step was unknown, we hear now the roar of hundreds of stampheads, the rush of water, and see the hills stripped of their trees, the streams elevated from their natural beds, fine houses, wide streets, tall chimneys, churches, theaters, etc. If in some places there has been a profuse outlay, it has not been that of the spendthrift, but rather that of the wise, enlightened and perhaps too liberal population, who have faith in their prospects, and show it more in deeds than words.—*Scientific Press.*

The Extension of the Iron Trade in Japan.—The Government of Japan is taking steps for establishing blast furnaces, in which the excellent magnetic iron ores averaging above fifty per cent. metallic iron, and which occur in lodes, are to be smelted both with charcoal as well as coke. The iron hitherto manufactured in Japan has been made, as described in a former report, from the iron sands which occur in the islands of Yesso, by a sort of bloomery process, and these iron sands have lately been described in the report of Mr. B. S. Lyman, the geologist and mining engineer to the Government of Japan, as consisting of two varieties, the one easily smelted and pure, whilst the other is difficult to smelt, and supposed to contain titanium. He estimates the total quantity of these sands at 125,000 tons, which he regards as containing 91,000 tons metallic iron, but states that only some 5,500 tons of the sand are of the easily smelted description.—*Iron and Steel Institute.*

Liquid Parchment.—According to Dr. Hoffman, a fluid by this name, consisting of guttapercha softened and soaked in ether, is especially adapted for forming a coating for pictures and cards, it permitting the removal of dirt with a moist rag. Pencil and crayon drawings may be rendered ineffaceable by sprinkling with this liquid by means of an atomizer, an exceedingly delicate film remaining on the evaporation of the ether.

The new revenue steamer for the Pacific coast is to be built by the Oregon Iron Works, of Portland, Oregon, their bid being the lowest—$92.000. The vessel is to be one of the staunchest in the service, and will be 145 ft long, 23 ft breadth of beam and 11 ft depth of hold. Her draft of water will be 10 ft 10 in, and she will be of 227 tons custom-house measurement. She is to be a propeller with a vertical inverted engine, 34 in. diameter of cylinder by 34 in. stroke, and provided with a surface condenser.